

TYLKINA, M.A.; POVAROVA, K.B.

Second All-Union Conference on Rhenium. TSvet. set. 36 no.4:
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(Rhenium)

TYLKINA, M.A.(Moskva); POVAROVA, K.B.(Moskva); SAVITSKIY, Ye.M.(Moskva)

Recrystallization and mechanical properties of alloys in the
system tungsten - molybdenum - rhenium. Izv. AN SSSR.Otd.tekh.nauk.
Met. i topl.181-186 S-0 '62. (MIRA 15:10)
(Tungsten-molybdenum-rhenium alloys—Testing)
(Crystallization)

SAVITSKIY, Ye.M.; TYLKINA, M.A.; POVAROVA, K.B.

Phase diagram of the aluminum - rhenium system. Zhur.neorg.khim.
6 no.8:1962-1965 Ag '61. (MIRA 14:8)

1. Institut metallurgii imeni A.A. Eaykova AN SSSR.
(Aluminum) (Rhenium)

88598

S/078/60/005/011/009/025
BG15/BG60

18,1200

AUTHORS: Tylkina, M. A., Povarova, K. B., Savitskiy, Ye. M.
TITLE: Ternary Solid Solutions in the Tungsten - Molybdenum -
Rhenium System
PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 11,
pp. 2458-2461

TEXT: The article under consideration shows a part of the constitution diagram of the W - Mo - Re ternary system obtained by the method of microstructural analysis, by measuring the hardness and the melting point of the alloys. The authors studied the diagram on the side of the solid solution in tungsten and molybdenum up to 50 wt% rhenium, with the alloys of the parallel cross sections W - Mo being selected with a constant rhenium content of 10, 20, 30, 40, and 50% (Fig. 1). From the data of phase analysis, three isothermal cross sections of cast alloys, annealed at 1750°C for 3 h, and at 1000°C for 450 h were recorded. The cuts for the microstructural examinations were etched in a mixture of 10% KOH and 30% $K_3[Fe(CN)_6]$ (1 : 2). A fairly large region of ternary solid solutions

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Ternary Solid Solutions in the Tungsten -
Molybdenum - Rhenium System

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B015/B060

with body-centered cubic crystal lattice was observed in the system concerned. A ternary δ -phase formed. Between the ternary solid α -solutions and the δ -phase there is the two-phase region $\alpha + \delta$ (Fig. 1). It may be observed from the pictures of microstructure (Fig. 2) of the cross section with 40 wt% Re that the alloy with 40 wt% W and 20 wt% Mo is situated at the limit of solubility and is a one-phase ternary solid solution at high temperatures, which on a decrease of temperature passes over into the two-phase state $\alpha + \delta$. The alloy with 30 wt% W and 30 wt% Mo remains a one-phase ternary solid solution at all temperatures. The alloy 50 wt% W and 10 wt% Mo, on the other hand, has a two-phase structure $\alpha + \delta$ at all temperatures. The formation of twins, which had already been observed by Hughes and Geach (Ref. 5), C.T. Sims and R. J. Jaffee (Ref. 6) was identified in the region of ternary solid solutions. This additional deformation by twinning is explained by the larger amount (in this field) of the densely packed hexagonal rhenium. For this reason, high elasticity and good mechanical properties are expected of alloys of this region. In the region of ternary solid solutions hardness changes little with temperature (Table). Changes in the solidus temperature showed that in the region of ternary solid solutions at constant rhenium content (up to

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Ternary Solid Solutions in the Tungsten -
Molybdenum - Rhenium System

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30 wt% Re) there occurs a uniform drop of the melting point of alloys with a decrease of the tungsten content and an increase of the molybdenum content. In the authors' opinion, the alloys of the composition of ternary solid solutions are specially suited as building material, wherever great demands are made on strength, plasticity, weldability, and a high melting point, but no stability to oxidation at high temperatures. There are 2 figures, 1 table, and 8 references: 4 Soviet, 3 German, and 1 US.

ASSOCIATION: Institut metallurgii im. A. A. Baykova Akademii nauk SSSR
(Institute of Metallurgy imeni A. A. Baykov of the Academy
of Sciences of the USSR)

SUBMITTED: February 17, 1960

Card 3/3

POVAROVA, K.B.; TYLKINA, M.A.

~~Source of information~~

Properties and use of rhenium. Biol.tekh.-ekon.inform.Sos.nauch.-
issl.inst.nauch.i tekh.inform. no.9:7-11 '63. (MIRA 16:10)

L 18518-63

ACCESSION NR: AP3000919

S/0279/63/000/002/0174/0176

AUTHORS: Tytkina, M. A.; Povarova, K. B.

TITLE: Second All-Union conference on rhenium

SOURCE: AN SSSR. Izv. otd. tekhn. nauk. Metallurgiya i gornoye delo, no. 2, 1963, 174-176

TOPIC TAGS: rhenium

ABSTRACT: The Second All-Union Conference on Rhenium was held in Moscow on November 19-21, 1962. The conference was organized by the Institut metallurgii im. A. A. Baykova (Institute of Metallurgy) and by the Gosudarstvennyy institut redkikh metallov (Goskomitet SM SSSR po chernoy i tsvetnoy metallurgii) [State Institute of Rare Metals (Goskomitet SM SSSR of Ferrous and Nonferrous Metallurgy)]. The First Conference on Rhenium was held in Moscow in 1958, and the International Symposium on Rhenium was held in Chicago in 1960. At the second conference 64 papers pertaining to the sources, extraction, properties, and uses of rhenium were presented. Authors and subjects of these papers are listed.

ASSOCIATION: none

Card 1/2

18.12.10

2408

25514

S/078/61/006/008/013 '018
B127/B220

AUTHORS: Savitskiy, Ye. M., Tylkina, M. A., Povarova, K. B.

TITLE: Phase diagram of aluminum-rhenium

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 8, 1961, 1962-1965

TEXT: A compound of the type CaCl is known to the authors from the literature: AlRe , $a = 2.88\text{\AA}$. The alloys were prepared from 99.8% Re and ~~AB-000~~ (AV-000), i. e., 99.9% aluminum. The plotting of the diagram is rather difficult, since the weights (Al: 2.7; Re: 21.02), the melting points (Al: 660°C ; Re: 3170°C), and the boiling points (Al: 2060°C ; Re: 5870°C) are very different. Alloys containing 13.6 - 86.3 % by weight of Re were prepared in an arc furnace with water-cooled tungsten electrodes in an argon atmosphere at a pressure of 400 mm Hg and remelted 4 - 5 times in order to obtain a homogeneous phase. Alloys containing 0 - 6% of Re were fused in an induction furnace with NaCl as flow medium from aluminum and alloys containing 37% of Re in corundum crucibles. Alloys containing 88.5 - 99.6% of Re were fused from rhenium and compounds containing 74.5% of Re in the arc furnace. The melting point of alloys containing 74.5 -

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Phase diagram of...

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99.6% of Re was determined using the capillary method and an optical pyrometer. The compounds enriched with aluminum were tested with a special device recording the thermogram on heating and cooling by means of a Kurnakov pyrometer. A high-temperature thermocouple W - 3% Re/W - 15% Re was used. Thermal analysis was effected in a vacuum furnace with tungsten heaters and helium atmosphere. Alloys containing 0 - 82.5% of rhenium were tempered in evacuated quartz ampullae for 500 hr at 570°C, and alloys containing 74.5 - 99.6% of Re for 100 hr at 1000°C, for 5.5 hr at 1300°C, and for 1.5 hr at 1600°C and 10⁻⁴ mm Hg. The Brinell hardness of alloys with 0 - 60% of Re was measured with 2.5 mm balls and at a pressure of 31.25 kg. Moreover, the hardness of the alloys was measured by means of a Vickers diamond at a pressure of 10 kg, and with a ПМТ-3 (PMT-3) diamond at pressures of 20 and 50 g. The χ -phase of the diagram corresponds to the α -phase of manganese. The lattice parameter $a = 9.85 \text{ \AA}$, the space group 143 m - L_d^2 . The microhardness is 800 kg/mm². Al₂Re has a microhardness of 1000 kg/mm². Al₁₂Re has a microhardness of 360 kg/mm² and the same structure as Al₁₂W or Al₁₂Mo with cubic structure. The lattice parameter $a = 7.528 \pm 0.001 \text{ \AA}$, the space group $Lm\bar{3}-T_h^5$. There are

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APPROVED FOR RELEASE

18(6)

SOV/78-4-2-27/40

AUTHORS:

Savitskiy, Ye. M., Tylkina, M. A., Povarova, K. B.

TITLE:

The Phase Diagram of the System Rhenium-Molybdenum
(Diagramma sostoyaniya sistemy reniy-molibden)

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 2,
pp 424-434 (USSR)

ABSTRACT:

The phase diagram of the system Mo-Re was drawn on the basis of the results obtained by physico-chemical and analytical investigations (determination of the melting point, microscopic, X-ray, and phase analyses, determinations of the specific electric resistance, and determination of solidity). For the production of the alloys maximum purity rhenium (99.8%) and molybdenum (99.8%) were used as initial materials. The pressed samples were sintered in vacuum at 1500°. In the system rhenium-molybdenum solid solutions containing 58 weight% rhenium (42 at % Re) are formed at temperatures near the melting point. The solidity of molybdenum alloys increases, in the field of solid solutions, from 130 kg/mm² (pure molybdenum) to 205 kg/mm² for the alloy containing 53 weight% rhenium. In alloys with 43-46 weight % rhenium the liquidus and solidus curve of the solid solutions show a minimum at a

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SOV 78-1-2-27/10

The Phase Diagram of the System Rhenium-Molybdenum

temperature from $2450 \pm 30^\circ$. The X-ray analysis showed that upon increase of rhenium content the lattice constant in the solid solution is reduced and is 3.12 \AA in the alloy with 53 weight %. The determination of the electric resistance confirmed the range of solid solutions. The specific electric resistance of pure molybdenum is $6.6 \cdot 10^{-6} \text{ ohm}\cdot\text{cm}$, and rises to $27.6 \cdot 10^{-6} \text{ ohm}\cdot\text{cm}$ in alloys with 42 weight % rhenium. In the system Mo-Re the σ -phase (Re_3Mo_2) is formed after a peritectic reaction at 2570° . The lattice parameters of the σ -phase are: $a = 9.54 \text{ \AA}$ and $c = 4.95 \text{ \AA}$. The micro-solidity of the σ -phase is 1850 kg/mm^2 . The specific electric resistance of the σ -phase is stronger than that of the solid solution and amounts to $3.1 \cdot 10^{-4} \text{ ohm}\cdot\text{cm}$ in the alloy with 78 weight % Re. The $\alpha + \sigma$ phase field exists between the σ -phase and the field of solid solutions. The mono-phase field of solid solutions of molybdenum in rhenium exists at the melting point temperature starting with 10 weight % molybdenum and amounts up to 2-3 weight % Mo at 1100° . The solidity of the alloy with

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The Phase Diagram of the System Rhenium-Molybdenum

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95 weight % Re is reduced to 320 kg/mm², and to 290 kg/mm² in pure rhenium. In these alloys also the electric resistance is reduced to $57 \cdot 10^{-6}$ ohm.cm for the alloy with 95 weight % Re. In the system Mo-Re the phase χ is formed after the peritectic reaction at 1850°C. The peritectic change $\sigma + \beta \rightarrow \chi$ takes place in alloys which contain 81-95 weight % rhenium. The χ -phase has the structure of type α -Mn as has been found by X-ray analysis. The microscopic examinations of solidity and electric resistance of alloys with 81-95 weight % rhenium prove the existence of the χ -phase. The solidity and electric resistance of the alloys are increased by the formation of the new phase χ . There are 7 figures, 2 tables, and 11 references, 3 of which are Soviet.

ASSOCIATION: Institut metallurgii im. A. A. Baykova Akademii nauk SSSR
(Institute of Metallurgy imeni A. A. Baykov of the Academy of Sciences, USSR)

SUBMITTED: November 25, 1957

Card 3/3

SAVITSKIY, Ye.M., doktor khim. nauk, otv. red.; RYABCHIKOV, D.I., doktor khim. nauk, red.; BIBIKOVA, V.I., doktor khim. nauk, red.; TYLKINA, M.A., kand. tekhn. nauk, red.; POVAROVA, K.B., inzh., red.; MAKARENKO, M.G., red. izd-va; SIMKINA, G.S., tekhn. red.

[Rhenium; transactions] Renii; trudy. Moskva, Izd-vo Akad. nauk SSSR, 1961. 278 p. (MIRA 15:1)

1. Vsesoyuznoye soveshchaniye po probleme reniya, 1958.
(Rhenium)

Povarova, K. B.

S/078/60/005/008/015/016
B004/B052

AUTHORS: Tylkina, M. A., Povarova, K. B., Savitskiy, Ye. M.

TITLE: Phase Diagram of the System Vanadium[✓] - Rhenium[✓]

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 8,
pp. 1907-1910

TEXT: The phase diagram depicted in Fig. 1 was determined by means of a measurement of the melting temperatures, microscopic and radiographic analyses, measurement of the hardness of the alloys and the micro hardness of the components. The initial substances were V and Re powder fused together in an arc furnace. The melting temperature was determined by means of an optical pyrometer calibrated according to the pure metals. The hardness was measured according to Vickers with a ПМТ-3 (PMT-3) apparatus. The X-ray pictures were taken with an РКД (RKD) camera. In Fig. 2 the microstructures of V-Re alloys are depicted, and a Table gives the analytical data and hardnesses. An exact description of ranges, lattice constants, and physical data of the new σ -phase (VRe_3)

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Phase Diagram of the System Vanadium -
Rhenium

S/078/60/005/008/015/018
B004/B052

which is only stable above 1500°C are given, and also the ranges of the solid solutions, α - and β -phases, $\alpha+\beta$ eutectic, and the twophase ranges of $\alpha+\sigma$ and $\sigma+\beta$. There are 2 figures, 1 table, and 2 references: 1 Soviet and 1 US.

ASSOCIATION: Institut metallurgii im. A. A. Baykova Akademii nauk
SSSR (Institute of Metallurgy imeni A. A. Baykov of the
Academy of Sciences, USSR) ✓

SUBMITTED: February 17, 1960

Card 2/2

SAVITSKIY, Ye.M., doktor khim. nauk, otv. red.; RYABCHIKOV, D.I.,
doktor khim. nauk, red.; BIBIKOVA, V.I., doktor tekhn.
nauk, red.; TYLZINA, E.A., kand. tekhn. nauk, red.;
POVAROVA, K.B., kand. tekhn. nauk, red.; BORISOVA, L.V.,
inzh., red.; MAKARENKO, M.G., red.

[Rhenium; transactions] Renii; trudy. Moskva, Nauka,
1964. 257 p. (MIRA 18:1)

1. Vsesoyuznoye soveshchaniye po probleme reniya. 2d, 1962.

L 27228-66 EWT(m)/T/EWP(w)/EWP(t) IJP(c) JD/JG

ACC NR: AM6003227

Monograph

28 UR/

B+1

Savitskiy, Yevgeniy Mikhailovich; Tytkina, Mariya Aronovna; Povarova, Kira Borisovna

²⁷
Alloys of rhenium (Splavy reniya) Moscow, Izd-vo "Nauka," 1965. 334 p. illus., biblio. (At head of title: Akademiya nauk SSSR. Gosudarstvennyy komitet po chernoy i tsvetnoy metallurgii pri gosplane SSSR. Institut metallurgii im. A. A. Baykova) 2500 copies printed.

TOPIC TAGS: rhenium, rhenium alloy, alloy containing rhenium, rhenium production, rhenium property, rhenium alloy property, rhenium phase diagram

PURPOSE AND COVERAGE: This monograph is published as an encyclopedic summary of modern knowledge on rhenium, its alloys and compounds. An attempt was made to generalize the data gathered by authors about the structure and physicochemical properties of rhenium, its alloys and compounds, and to determine the application of rhenium in industry.

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UDC: 669.84+669.845

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Card 5/5 *cc*

SA [illegible] [illegible], doktor khim. nauk; TYLAKINA,
[illegible]; BOYANINA, Mira Borisovna

[illegible] [illegible] [illegible] [illegible]. Moskva, Nauka, 1965. 334 p.
(MIRA 18:10)

SHMULEVICH, A.I.; POVAROVA, L.N.; TURSUNOV, P.T.; LI, P.N.; ORLOV, V.P.

Chemotherapeutic characteristics of the new preparation azidine.
Veterinariia 38 no.11:23-25 N '61 (MIRA 18:1)

1. Gosudarstvennyy nauchno-kontrol'nyy institut veterinarnykh preparatov Ministerstva sel'skogo khozyaystva SSSR (for Shmulevich, Povarova) 2. Nauchno-issledovatel'skiy institut veterinarii Akademii sel'skokhozyaystvennykh nauk Uzbekskoy SSR (for Tursunov, Li, Orlov).

POVARKOV, Ya.Ya., aspirant

Atheism of Epicurus. Nauka i zhizn' 27 no.2:49-51
F '60. (MIRA 13:6)

1. Moskovskiy gosudarstvennyy universitet.
(Atheism)

18.9200
AUTHORS:

Tylkina, M. A., Povarova, K. B.,
Savitskiy, Ye. M.

68992
S/020/60/131/02/034/071
B011/B005

TITLE:

The Sigma Phase in the Rhenium-Vanadium System

PERIODICAL:

Doklady Akademii nauk SSSR, 1960, Vol 131, Nr 2, pp 332-334 (USSR)

ABSTRACT:

In their previous paper, the authors established the phase diagram of the vanadium-rhenium system (Ref 10). In the present paper, they wanted to determine the temperature range of the existence of the σ -phase. For this purpose, they annealed casting alloys at high temperature (1750° for 7 h, 1500° for 5 h, 1000° for 450 h). The X-ray investigation was carried out in a chamber of type PKD with $\text{CrK}\alpha$ -radiation. The X-ray structural and microstructural investigations showed the eutectoid decomposition of the σ -phase at 1500° . 2 solid solutions are formed: on the basis of vanadium (α) and rhenium (Fig 1 a,b). The roentgenogram of a casting alloy shows a system of lines characteristic of σ -phases (Table 1). The lattice parameters were computed as follows: $a = 9.39 \text{ \AA}$, $c = 4.86 \text{ \AA}$, $c/a = 0.52$. Table 1 lists comparative data of roentgenographic calculations of σ -phases in rhenium systems with zirconium, vanadium, niobium, tantalum, chromium, molybdenum, wolfram, manganese, and iron (Refs 4-9). A certain phase difference in the system

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20-119-2-23/60

AUTHORS: Savitskiy, Ye. M., Tylkina, M. A., Povarova, K. B.

TITLE: Rhenium Recrystallization Diagram (Diagramma rekristallizatsii reniya)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol 119, Nr 2, pp 274 - 277 (USSR)

ABSTRACT: Rhenium has different mechanical and physical properties which distinguish it from other metals and which are also of interest for modern engineering. Rhenium is a high melting metal, its melting point is at 3160°C. It has mechanical high strength and plasticity properties at room temperature as well as at higher temperature. The following is characteristic for rhenium: high resistance to wear, and resistance against corrosion in various aggressive media. The electric resistance of rhenium is higher than that of tungsten. Also other properties offer wide prospects for the use of rhenium in different fields of engineering. The recrystallization diagram of rhenium has hitherto not yet been published. The authors investigated the recrystallization diagrams of rhenium after cold deformation

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Rhenium Recrystallization Diagram

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(rolling) of cast and metal-powder samples. As initial material served the powder of metallic rhenium which had been reduced from potassium perenate (perenat kaliya). From this powder the samples were produced by powder metallurgical methods. These rhenium bars were melted in an arc furnace in an argon atmosphere at a pressure of 200 torr. The coarse crystalline structure of the cast metal could be removed. The samples had a recrystallized polyhedral structure with a grain diameter of 40μ and served as initial material for the whole work. The treatment of the samples is shortly discussed. The temperature at the beginning of recrystallization was determined by means of X-ray methods from the occurrence of the first points on the diffraction rings. A diagram shows the temperature of the beginning of recrystallization of rhenium as a function of the degree of cold deformation. This temperature drops with increasing deformation degree 1750°C at 5% deformation to 1200°C at 40-60% deformation. In cold deformation of rhenium the grains were crushed. In the case of low compression degrees the formation of deformation twins is observed in rhenium. Further details are discussed. The temperature of the beginning of re-

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Rhenium Recrystallization Diagram

20-119-2-23/60

crystallization of powder metallurgical rhenium drops with increasing deformation degree from 1850°C at 5 % to 1500°C at 48% of deformation. A diagram shows the dependence of the size of the grains on the temperature of annealing as well as on the degree of deformation. The temperature of the beginning of crystallization of molten rhenium is lower than that of the beginning of recrystallization of powder -metallurgical rhenium which is explained by the different degree of purity of the material as well as by the presence of a microporosity in powder metallurgical rhenium. According to the data on the recrystallization and on the change of the hardness of rhenium the optimum temperature for annealing of the rhenium deformed with a compression degree of more than 10% the temperature range from 1750 - 2400°C can be assumed. There are 4 figures and 7 references, 5 of which are Soviet.

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Rhenium Recrystallization Diagram

20-119-2-23/60

ASSOCIATION: Institut metallurgii im. A. A. Baykova Akademii nauk SSSR
(Institute for Metallurgy imeni A. A. Baykov, AS USSR)

PRESENTED: November 28, 1957, by I. P. Bardin, Member, Academy of
Sciences, USSR

SUBMITTED: November 16, 1957

Card 4/4

5(2)

AUTHORS:

SOV/78-4-8-37/43
Savitskiy, Ye. M., Tylkina, M. A., Povarova, K. B.

TITLE:

The Phase Diagram of the System Chromium - Rhenium (Diagramma sostoyaniya sistemy khrom - raniy)

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 8, pp 1928-1930 (USSR)

ABSTRACT:

By means of various physico-chemical methods (determination of the melting point, microscopic analysis, X-ray analysis, measurements of hardness and microhardness), the phase diagram chromium-rhenium was determined (Fig. 1). Some microstructures of cast or thermally processed alloys are shown in figure 2. The phase diagram shows a peritectic type. The peritectics are between 2350° (liquid phase + $\beta \rightarrow \alpha$) and 2280° (liquid phase + $\sigma \rightarrow \alpha$) (the solid α -solution is formed on Cr-basis, the solid solution on Rh-basis). The hardness of the solid solution increases with the rhenium content (138 kg/mm² for pure Cr, 322 kg/mm² for the alloy with 63.5 % by weight Rh). The one-phase range of the solid solution of chromium and rhenium was approximately outlined. Apparently the solubility of chromium

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The Phase Diagram of the System Chromium - Rhenium

SOV/78-4-8-37/43

in rhenium does not exceed 5 % by weight Cr. It is emphasized that an addition of 40% rhenium to chromium improves the plasticity of chromium and its processing is facilitated by cutting. There are 2 figures and 8 references, 4 of which are Soviet.

SUBMITTED: March 17, 1959

Card 2/2

SAVITSKIY, Ye.M.; TYLKINA, M.A.; POVAROVA, K.B.

Structural diagram of the rhenium - molybdenum system. Zhur.neorg.
khim. 4 no.2:424-434 F '59. (MIRA 12:3)

1. Institut metallurgii imeni A.A. Baykova AN SSSR.
(Rhenium-molybdenum alloys)

L 23904-65 EWT(m)/EWP(w)/EPF(c)/EPF(n)-2/EWA(d)/T/EWP(t)/EWP(b) Pr-4/Pu-4
IJP(c) JD/JG/MLK

ACCESSION NR: AT5002770

S/0000/64/000/000/0155/0160

AUTHOR: Povarova, K. B. (Candidate of technical sciences); Tylkina, M. A. (Candidate of technical sciences); Savitskiy, Ye. M. (Doctor of chemical sciences) B+

TITLE: Ternary tungsten-molybdenum-rhenium alloys

SOURCE: Vsesoyuznaya soveshchaniye po probleme reniya. 2A, Moscow, 1962. Reniy (Rhenium); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1964, 155-160

TOPIC TAGS: rhenium, tungsten, molybdenum, ternary alloy, recrystallization temperature, mechanical property, nil ductility transition, temperature 18

ABSTRACT: A series of W-Mo-Re alloys containing 33—66% W, 22—40% Mo, and 11—24% Re has been investigated. Small, 70—75-g alloy ingots were preformed at 1400—1000C, rolled at 1200—800C (below the recrystallization point) with a total reduction of more than 90% to a thickness of 0.7—1.0 mm. The temperature of the beginning of recrystallization of the alloys varied from 1450 to 1550 depending on composition. The room temperature strength and elongation were 113 to Card 1/2

L 23924-65

ACCESSION NR: AP5000121

allowable maximum length of workpiece 2000 mm, and allowable maximum diameter of workpiece 80 mm. The control box has a time-delay device and is used to control the welding equipment in operation.

ASSOCIATION: Shang-hai Lao-tung tien han chi ch'ang (Shanghai Lao-tung Electric Welding Equipment Plant)

SUBMITTED: 00

ENCL: 00

SUB CCDE: IE

NR REF SOV: 000

OTHER: 000

Card 2/2

POVAROVA, L.N., mladshiy nauchnyy sotrudnik

Prophylaxis of piroplasmosis in cattle. Veterinariia 40 no.7:
20-21 JI '63. (MIRA 16:8)

1. Gosudarstvennyy nauchno-kontrol'nyy institut veterinarnykh
preparatov.

(Piroplasmosis) (Cattle--Diseases and pests)

POVAROVA, L. R., JOMEL WICH, A. I.,¹ LI, F.H., TUMALOV, P. ., SHEN, V. F. .
(1 State Sci. Control Inst. of Vet. Preparations, Min. of Agr., USSR) (2 Sci. Res.
Inst. of Veterinary Medicine of the Acad. Agric. Sci. Uz SSR).

"Chemotherapeutic Properties of the New Azidin Preparation."
Veterinariya vol. 37, no. 11, November 1961., p. 23

83470

S/182/60/000/001/004/008

A161/A029

26.2/22
AUTHORS:

Bagatov, B.N.; Martynov, V.N.; Povarov, V.S.

TITLE:

Progressive Trends in Production of Forgings for Steam and Gas Turbine Blades

PERIODICAL:

Kuznechno-shtampovochnoye proizvodstvo, 1960, No. 1, pp. 17 - 19

TEXT:

Brief general information is given on new precision forging methods for turbine and compressor blades. TsNIITMASH has developed a new technology consisting in extrusion and rolling operations, and straightening combined with heat treatment. The first experimental blades for the 7th stage of PT-600-6 (GT-600-6) turbine and 14th and 16th stages of BK-50-1 (VK-50-1) are shown (Figs. 1 and 2) in shaping stages beginning with cylindrical billet and ending with ready forged blade. For comparison, the forging equipment used in industry at the time being, and suggested by LF VPTI on Leningradskiy filial VPTI tyazhelogo mashinostroyeniya (Leningrad Branch of VPTI of Heavy Machine Building) and by TsNIITMASH is listed in tables (Table 1 and 2). All methods give the same 2 - 3 mm machining allowance, but the new method requires simpler equipment and less power. The TsNIITMASH version (right in Table 1) takes a specialized 1,000-ton hydraulic press for ex-

Card 1/3

03470

S/182/60/000/001/004/008

A161/A029

Progressive Trends in Production of Forgings for Steam and Gas Turbine Blades

trusion; specialized 315-ton forging rolls for rolling, and a special 2,000-ton press for straightening-sizing. The general trend is organization of specialized production centers. Organisational suggestions have been made also by NIAT. TsNIITMASH has suggested five plan versions for line production of blade forgings for stationary steam and gas turbines. All systems either eliminate milling, or require only little of it, raise the metal utilization coefficient from 0.2 to 0.5, and cut the work and costs from 35 to 50% compared to the present production practice. An approximate equipment layout is shown (Fig. 3) for production of turbine and compressor blades with constant as well as varying cross section area and without reinforcement of the work portion. A hot-rolled round bar is straightened in machine "1", passes to a centerless stripping machine "2" for removing surface defects, then it is heated, and cut into blanks in a special die in a crank press, "3", then the blanks are heated without formation of scale to the temperature of the upper deformation interval, lubricated, flattened and extruded in a special press, "4", in single heating, cleaned after cooling in the installation "5", they pass into inspection and go on into the heating furnace "6" with protective atmosphere, pass into special forging rolls "7" and from

Card 2/3

LIST AND 2ND ORDER										PROCESSING AND PROPERTY INDEX										1ST AND 2ND ORDER									
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B-2-7																													
<p>Use of black (magnetic) acid in recovery of spent catalyst (from treatment of fat). A. Laptev and M. Pyvarova (<i>Mashob. Shit. Delo</i>, 1936, 18, 250-252).—The use of black and pure H_2SO_4 in the recovery of spent catalyst was compared. The catalyst obtained without preliminary purification of the solution with $NaOH$ gave somewhat darker mixtures of fat. CH. Abs. (e)</p>																													
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION																													
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1ST AND 2ND ORDER										1ST AND 2ND ORDER										1ST AND 2ND ORDER									

CA

27

The use of black (sulfuric) acid in the recovery of spent catalyst. A. Laptrev and M. Poyatova. *Maikheche Zhurnal* 12, 250 2(1930).--The petroleum pitch, obtained in the production of org. acids from petroleum oil, was treated in water with steam, giving a bottom acid layer contg. 80-95% H_2SO_4 . The use of black and pure H_2SO_4 in the recovery of spent catalyst was compared. Spent catalyst from oil hydrogenation was twice decompd. with 10% acid (based on 100% H_2SO_4) by injecting steam for 6 hrs. The combined filtrates were divided into 2 parts. One part was freed from Fe and P by treating the soln. in the cold with $NaClO$ in H_2O until all the Fe^{++} was oxidized to Fe^{+++} (tested with $K_3Fe(CN)_6$) and pptg. Fe and P by careful addn. of Na_2CO_3 . The other part of the acid filtrate was used without freeing it from Fe and P. The 3 solns. were used in the prepn. of Ni catalyst pptd. on kieselguhr (1:2.6). The 3 catalysts, after reduction in oil at 40° for 4 hrs., were used in hydrogenation of sunflower oil, giving comparable results. The catalyst obtained without preliminary purification of the soln. with $NaClO$ gave somewhat darker fat mixt. Chas. Blanc

NAZIN, Vladimir Sergeyevich; FIS'YAUK, Z.V.; IOVAROVA, N.P.;
MARTSEVICH, Yu.P., red.

[New types of brined and pickled vegetables; from the
practices of the Consumers Associations of the R.S.F.S.R.]
Novye vidy solenyykh i kvashennykh ovoshchei; iz opyta ra-
boty potrebsoiuzov RSFSR. Moskva, Ekonomika, 1964. 50 p.
(MIRA 18:4)

L 54624-65

EWT(m)/EPF(c)/ENP(j)/T Pc-4/Pr-4 KM

ACCESSION NR: AP5017443

UR/0138/64/000/011/0018/0022

AUTHOR: Povarova, Z. G.; Bartenev, G. M.

TITLE: Rotational viscosimeters and methods for the investigation of the flow of rubber-like polymers

SOURCE: Kauchuk i rezina, no. 11, 1964, 18-22

TOPIC TAGS: rubber, viscous flow, polymer, polymer physical chemistry

ABSTRACT: The design and principle of operation of a number of USSR rotational viscosimeters are reviewed. Results of measurements carried out on various types of viscosimeters operating either at a constant shear deformation ($\dot{\gamma} = \text{const.}$) or a constant shear stress ($P = \text{const.}$) are compared, with particular attention to measurements on polyisobutylene. It is brought out that the energy of activation of elastomer flow can be calculated either on the basis of data obtained at $\dot{\gamma} = \text{const.}$ or data obtained at $P = \text{const.}$

Card 1/2

L 54624-65
ACCESSION NR: AP5017443

The rotational plastometer designed by I. F. Kanavets (I. F. Kanavets, Khimiya i Fiziko-Khimiya Vysokomolekulyarnykh Soyedineniy - Chemistry and Physical Chemistry of High-Molecular Compounds - , Acad. Sci. USSR, 1952, p. 204) is stated to be the most convenient and reliable device for the determination of the rheological characteristics of elastomers and rubber mixtures.
Orig. art. has: 2 formulas, 6 graphs.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti (Scientific Research Institute of the Rubber Industry); Problemnaya laboratoriya fiziki polimerov MGPI im. V. I. Lenina (Problem Laboratory of the Physics of Polymers, MGPI)

SUBMITTED: 00

ENCL: 00

SUB CODE: MT, GC

NR REF SOV: 008

OTHER: 003

JPRS

Card 2/2

BARTENEV, G. M.; IOVAROVA, Z. G.

"Polystyrolen-Rex-Mischungen."

report submitted for High Polymers Mtg & Rubber Symp, Leipzig, GDR, 1958.

POVAROVA, Z.G.

Viscosimetric method of determining structural changes of polymers
when processed at various temperatures and pressures.

Report to be presented at the 13th Conference on high-molecular compounds
Moscow, 8-11 Oct 62

L 24233-65 EPF(c)/EWP(j)/EWT(m)/T Pc-4/Pr-4 RM
 S/0020/64/159/006/1350/1353
 ACCESSION NR: AP5001996

AUTHOR: Bartenev, G. M.; Povarova, Z. G.; Kargin, V. A. (Academician)

TITLE: Rheological properties and supramolecular structure of rubber-
 like polymers

SOURCE: AN SSSR. Doklady, v. 159, no. 6, 1964, 1350-1353

TOPIC TAGS: polyisobutylene, polyisobutylene flow, chemical flow,
 physical flow, rheological curve, supramolecular structure

ABSTRACT: The flow mechanism of linear polyisobutylene has been
 studied in view of the importance of rheological properties in the
 processing of polymers. The experiments were conducted in a rotary
 viscosimeter with linear PIB of a molecular weight of 900,000 at
 60—120C and shear strain rates of 0—1 sec⁻¹. A number of rheological
 curves (Figs. 1—4 of the Enclosure) are discussed. The abnormal shape
 of these curves could not be ascribed to "chemical" flow (degradation)
 because the molecular weight of the polymers and the activation energy
 of viscous flow remained unchanged under different experimental con-
 ditions. The fact that the flow is "physical" in nature was considered

Card 1/12

L 24233-65

ACCESSION NR: AP5001996

as a confirmation of the theory of Bartenov and Vishnitskaya [Vysokomolekul. soed., 6, 751, 1964] on the significant role of supramolecular structures in the flow mechanism of polymers. It is suggested that a linear polymer can be considered a network with temporary cross-linking consisting of microscopic sheaves which break down during flow. The viscous flow rate depends on the number of microscopic sheaves per unit of volume of the polymer. The rate of breakdown of microscopic sheaves increases with an increase in the stress and flow rate. Orig. art. has: 4 figures. [B0]

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti (Scientific Research Institute of the Rubber Industry)

SUBMITTED: 24Jul64

ENCL: 04

SUB CODE: 00,60

NO REF SOV: 006

OTHER: 000

ATD PRESS: 3176

Card 2/6

NAZAROV, N.I.; POVARNITSYN, M.S.; YURLOVA, Ye.V.

Calculating unsteady temperatures in an I-shaped element.
Vop.rasch.elem.aviats.konstr. no.1:142-168 '59.
(MIRA 13:6)

(Heat--Transmission)

POVAZSAY, Eva, dr.

The clinical significance of cervical spondylosis. Crv. kettil. 103
no.37:1747-1748 16 S '62.

1. Budapesti Orvostudományi Egyetem, Neurologiai Klinika.
(CERVICAL VERTEBRAE) (SPINAL DISEASES)

POVAZAN, Jan, inz.

"Welding of structure in reinforced concrete constructions"
by A.Ja.Brodskij. Reviewed by Jan Povazan . Zvaranie 11 no.1:
29 Ja '62.

POVAZHENKO, I. Y.

POVAZHENKO, I. Y.
About the pamphlet of professor B. M. Olivkov:
"The pathology and therapy of firing wounds in
the light of morphological and biochemical changes".

SO: VETERINARY 23;(4) April 1946
TABCON

POVAZHENKO, I. E., prof.

"Inflammatory processes of mucous and synovial cavities of the
extremities."

SO: Vet. 25(7), 1948, p 29

POTAZHENKO, I. VE.

"The Treatment of Infected Wounds," Veterinariya, No. 4, 1969, Prof.

POVAZHYENKO, I. YE.

27288

K Opyerativnym Vmyeshatyel'stvam Pri Strangulyatsionnykh Ilyeusakh I Loshadi
[Springech Red] Vyetyerinariya, 1949, No 9, S. 15-19

SG: LETOPIS NO. 34

POVAZHENKO, I. YE.

Oslozhneniya u zhivotnykh v svyazi s kastratsiyey (Complications in Animals
Resulting From Castration). KIEV - Khar'kov. Sel'khozgiz. USSR. 1950. 132 pages
with illustrations.

U-5235

IOVAZHNEV G. I. Ye.

Agriculture & Plant & Animal Industry

Pathology of withers of a horse, Moscow, Gos. izd-vo selkhoz, lit-ry, 1951.

Monthly List of Russian Accessions, Library of Congress, March 1952. UNCLASSIFIED.

POVAZHENKO, I. YE.

Intestines - Surgery

Surgical treatment of ileus in horses. Veterinariia 29 no.,2, 1952.

9. Monthly List of Russian Accessions, Library of Congress, April 1952, 2, 1952. Unclassified.

POVAZHENKO, I.E.; BRATIUKHA, S.I.; ABRAMOV, K.K.
"Operative interventions in ileus in horse."
SO: Vet. 29 (9) 1952, p. 48

POVAZHENKO, I. I.

Osnovnye voprosy veterinarnoi khirurgicheskoi praktiki / Basic problems in
veterinary surgical practice /. Kiev, Sel'khozgiz USSR, 1953. 1 p.

SO: Monthly List of Russian Accessions, Vol. 7 No. 2 May 1954.

POVAZHENKO, I.Ye.; BRATYUKHA, S.I.; AVRAMOV, K.K.

Surgical intervention in ileus in horses. Veterinariia 30 no.10:45-50 0 '53.
(MLR 6:9)

1. Kiyevskiy veterinarnyy institut. (Horses--Diseases)
(Veterinary surgery)

POVAZHENKO, Ivan Yemel'yanovich, prof.; BYRDINA, A., red.; PROKOF'YEVA, L.,
tekhn. red.

[General veterinary surgery] Obshchaia veterinarnaia khirurgiia.
Izd.2., ispr. i dop. Moskva, Gos. izd-vo sel'khoz. lit-ry,
1961. 452 p. (MIRA 14:8)
(Veterinary surgery)

POVAZHENKO, Ivan Yemelyanovich, professor; SOLOVNY, A.S., redaktor;
SOKOLOVA, N.N., tekhnicheskij redaktor

[General veterinary surgery] Obshchaya veterinarnaya khirurgiya.
Moskva, Gos. izd-vo sel'khoz. lit-ry, 1956. 366 p. (MIRA 10:3)
(Veterinary surgery)

POVAZHENKO, I. E.

27288: POVAZHENKO, I. E. K operativnym vmeshatel'stvam pri strankulvatsionnykh ileusakh u loshadi. (s primech. red., Veterinariya, 1949, No. 9, s. 35-36.

SO: Letopis' Zhurnal'nykh statey, Vol. 36, 1949.

SHAKALOV, Karp Iovich, professor, doktor veterinarnykh nauk; POVAZHENKO, Ivan Yemeliyanovich, professor, zasluzhennyy deyatel' nauki, doktor veterinarnykh nauk; MEDVEDEV, Ivan Dmitriyevich, professor, doktor veterinarnykh nauk; NIKANOROV, Vasilii Alekseyevich, dotsent, doktor veterinarnykh nauk; RYD'KIN, I.Ye., redaktor; CHUNAYEVA, Z.V., tekhnicheskiiy redaktor

[Specialized veterinary surgery] Chastnaia khirurgiia domashnikh zhivotnykh. Izd. 2-oe, perer. Moskva, Gos. izd-vo selkhoz. lit-ry, 1956. 360 p. (MLR 9:8)

1. Kiyevskiy veterinarnyy institut (for Povazhenko) 2. Moskovskaya veterinarnaya akademiya (for Medvedev) 3. Leningradskiy veterinarnyy institut (for Shakalov, Nikanorov)
(Veterinary surgery)

Reaction of alkyl diazo-compounds with mercury salts. A. M. KAMNEZANOV and G. E. PUCHIN (J. Gen. Chem. Russ., 1964, 4, 860-861).—Et diazoacetate and HgCl₂ yield CH₃COO₂Hg, N₂, and Hg[CCl(HgCl)CO₂Hg]. R. T.

POYONIKOV, V. A.

(Chair of Obstet. and Gynecol., Naval Med. Acad.)

"I. P. Pavlov and the Reflection of His Ideas on Obstetrics and G. Acc. 1977.

(On the Hundredth Anniversary of His Birth," Akusher. i Ginekol., No. 5, 1986.

V. A. Butenko

POVED, A.G.

AID Nr. 991-5 17 June

"SOFT"-VACUUM ELECTRON-BEAM WELDING (USSR)

Nazarenko, D. K., A. G. Poved, and N. N. Leont'yev. Avtomaticheskaya
svarka, no. 3, Mar 1963, 88-89. S/125/63/000/003/010/012

The Electric Welding Institute imeni Ye. O. Paton has developed an experimental unit for electron-beam welding in which the vacuum chamber is divided into two compartments. In the welding compartment a vacuum of $1 \cdot 10^{-1}$ to $1 \cdot 10^{-2}$ mm Hg is maintained. A higher vacuum of $1 \cdot 10^{-4}$ to $2 \cdot 10^{-4}$ mm Hg is maintained only in the electron-gun zone. Experiments with LX18H9T (AISI 321) steel 10 mm thick showed that complete penetration can be achieved with a 25-kv accelerating voltage and a beam current of 350 ma. The depth-to-width ratio of the weld was found to be lower than with welding in a higher vacuum. However, this could be the result of faulty design, for the focusing lens was located too far away from the weld. [ND]

Card 1/1

Р. П. С. К. а. у. 7. L. G.

137-1958-2-2627

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 60 (USSR)

AUTHORS: Murach, N.N., Povedskaya, L.G.

TITLE: On the Processing of Complex Tin-Lead-Copper-Zinc Concentrates (K voprosu pererabotki kompleksnykh olovyanno-svintsovo-medno-tsinkovykh kontsentratsiy)

PERIODICAL: Sb. nauchn. tr. Mosk. in-t tsvetn. met. i zolota i VNITO tsvetn. metallurgii, 1957, Nr 26, pp 193-199

ABSTRACT: A study was made of methods of separating a Cu-Sn-Pb-Zn concentrate with a view to achieving maximum recovery of the Sn and, on the side, of the other metals. The following treatment was worked out. The concentrate is roasted for 2 hours at 550-650°; the ash is then leached for 3 hours at 130°. Each ton of concentrate requires 2 tons of a 35 percent solution of HCl for leaching. When this was done, recovery of Sn in the cake after leaching was 84-86 percent; the Sn content of the cake was 15-30 percent (the Sn content of the concentrate being 4-8 percent); 6-10 percent of the Sn went into solution during leaching. During the roasting, 5-10 percent of the Sn sublimed. The remaining useful components were distributed thus:

Card 1/2

137-1958-2-2627

On the Processing of Complex Tin-Lead-Copper-Zinc Concentrates

of the Pb, up to 80 percent passed into the cake, up to 17 percent went into solution, and part of it entered the gas phase; the Cu and Zn went almost entirely into solution; the cake after leaching contained, apart from the Sn, as much as 30-35 percent SiO_2 and 25-35 percent Pb. The resulting cake was sent along for washing, drying, then for reduction fusion into Pb-Sn alloys. Pb was recovered from the solution (up to 16 percent). In addition, Cu, Pb, and Sn could be recovered from the solution by cementation.

G.S.

1. Copper alloys--Processing

Card 2/2

CHERNYAYEV, V.N.; POVEDSKAYA, L.G.; KOVALEV, Yu.T.

Rectification of metals. Zhur.prikl.khim. 36 no.1:56-62 Ja '63.
(MIRA 16:5)

(Metals--Metallurgy) (Distillation apparatus)

S/080/63/036/001/005/026
D226/D307

11. 4. 308
AUTHORS:

Chernyayev, V.N., Povedskaya, L.G. and
Kovalev, Yu. T.

TITLE:

Rectification of metals

PERIODICAL:

Zhurnal prikladnoy khimii, v. 36, no. 1,
1963, 56 - 62

TEXT:

The rectification of Hg (at atm. pressure and under vacuum) and of Cd and Zn (vacuum only) was studied in an effort to develop a suitable apparatus for this purpose and to assess the possibilities of this method for the production of very pure metals. A transparent silica column of 18 bubbler-type plates was used for Hg. The apparatus is shown in Fig. 1. Both this, and a similar 10-plate column allowed successful rectification to be carried out; the collecting rates varied, e.g. from 3.7 to 28.0 g distilled Hg per minute. Regulation of the amount of reflux was difficult. Apparatus of basically the same construction was used for Cd and Zn, with a 10-plate column, with equally successful results. It is concluded

Card 1/4

S/O80/63/036/001/005/026
D226/D307

Rectification of metals

that for columns up to 80 mm in dia, the plate separation, S , is sufficient when $S = (3 + 5) h$ [sic] where h is the thickness of metal on each plate. Changes in the linear velocity of the vapor along the column are calculated and found to increase from 1.44 at plate 1 to 11.4 m/sec on plate 9. The velocity increased sharply from plate to plate, the increments becoming greater towards the top of the column. Bubbling on the plates is an essential though not the only condition for successful purification on columns of this type. There are 5 figures and 2 tables.

September 19, 1961

SUBMITTED:

Fig. 1: Diagram of the apparatus for the rectification of mercury, with an 18-plate column and a device for the measurement of the amount of reflux.
Legend: 1 - container, 2 - thermometer housing, 3 - column, 4 - heating jacket, 5 - transformer, 6 - reflux measuring device, 7 - needle, 8 - dephlegmator, 9 - cooling jackets, 10 - trap, 11 - manometer, 12 - Tishchenko flask, 13 -

Card 2/4

Rectification of metals

LM 08
S/080/63/036/001/005/026
D226/D307

vacuum pump, 14 - clip, 15 - receiver.

A - air

B - argon

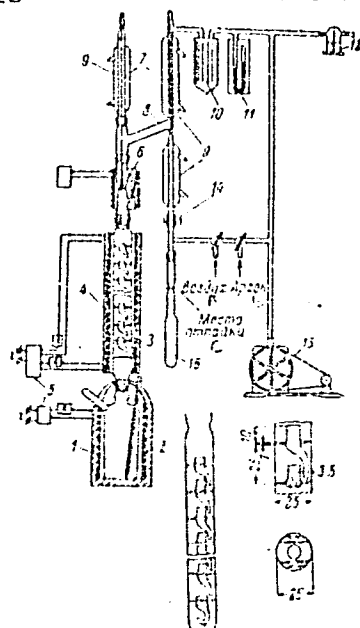
C - point of detachment

Card 3/4

V
X

Rectification of metals

S/080/63/036/001/005/026
D226/D307



Card 4/4

KRAPUKHIN, V.V.; POVEDSKAYA, L.G.; YERSHOVA, S.A.

Deep purification of zinc by distillation. TSvet. met. 34
no.6:23-27 Je '61. (MIRA 14:6)

1. Institut tsvetnykh metallov imeni M. I. Kalinina.
(Zinc--Metallurgy)

YERSHOVA, S.A.; POVEDSKAYA, L.G.; CHERNYAYEV, V.N.

Wettability of graphite and quartz by zinc and antimony. Izv.
met. 37 no.6:83 Je '64. (MIRA 1:9)

L 22556-65 EPA(s)-2/ENT(m)/ENP(t)/EMP(b) Pt-10 IJP(c) JD/JG

ACCESSION NR: AP5002186

S/0080/64/037/012/2557/2565

AUTHOR: Chernyayev, V. N.; Povedskaya, L. G.; Shashurin, Yu. S.

TITLE: Investigation of the mercury purification process. Communication III in a series of works on the rectification of metals

SOURCE: Zhurnal prikladnoy khimii, v. 37, no. 12, 1964, 2557-2565

TOPIC TAGS: mercury, purification, distillation, distillation column design, vacuum distillation 21

ABSTRACT: The purification of mercury by rectification and the hydrodynamic operating conditions of the plate^b distillation columns during the rectification were studied. The higher efficiencies of vacuum distillation in comparison to distillation at atmospheric pressure were recorded. Columns of different designs were examined: a quartz column with slit plates with the cross section of the openings equal to not less than 10% of the column section was most effective. Fe, Al, Mg, Zn, Pb, Mn, Cd and Cu impurities initially present in amounts less than 1×10^{-5}

Card 1/2

L 22556-65
ACCESSION NR: AP5002186

wt. % were essentially completely removed or considerably reduced by vacuum distillation. Orig. art. has; 6 tables, 9 figures and 1 equation.

ASSOCIATION: None

SUBMITTED: 07Jun63

ENCL: 00

SUB CODE: GC, IC

NR REF SOV: 005

OTHER: 003

Card 2/2

L 38273-65 EWT(m)/EWP(t)/EWP(b) JD

ACCESSION NR: AP5007437

S/0286/65/000/004/0063/0063

AUTHOR: Chernyayev, V. N.; Povedskaya, L. G.; Faremuzov, Ye. P. 16/8

TITLE: Column for vacuum refining metals and other products. Class 40, No. 168447 16

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 4, 1965, 63

TOPIC TAGS: vacuum refining column, metal vacuum refining, vacuum refining, vacuum purification, metal purification

ABSTRACT: This Author Certificate introduces a column for vacuum refining metals and other products which contains plates or packing. To achieve a deeper refining or separation of metals, the cross section of the refining portion of the column increases in the upward direction to ensure a constant rate of vapor flow, and the clearance between the upper plate or packing and the vapor outlet into the dephlegmator amounts to $1/4 - 1/6$ of the column height. Orig. art. has: 1 figure. [AZ]

ASSOCIATION: none

Card 1/2

L 38273-65

ACCESSION NR: AP5007437

SUBMITTED: 24May63

ENCL: 00

SUB CODE: HM

NO REF SOV: 000

OTHER: 000

ATD PRESS: 3227

cl
Card 2/2

L 31993-66 EWT(m)/EWP(+)/ETI IJP(c) JD
ACC NR: AP6019565 SOURCE CODE: UR/C080/66/039/006/1259/1266

AUTHOR: Chernyayev, V. N.; Zernov, V. B.; Povedskaya, L. G.; Yershova, S. A.;
Klofach, I. I.

ORG: none

TITLE: Deep purification of cadmium and zinc by rectification and zone refining

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 6, 1966, 1259-1266

TOPIC TAGS: cadmium, zinc, metal purification, metal zone refining, electric resistance, cadmium compound, zinc oxide

ABSTRACT: Deep purification of CdO commercial-grade cadmium and ZnO commercial-grade zinc by rectification and subsequent zone refining is described. Rectification was done in a h-f induction heated, graphite, shelf-type column with 26 plates, or in a quartz bubbling-type column with 10 and 20 plates. A single charge of metal was 9-11 kg. The purity of the metal fractions obtained with rectification was determined by measurement of the residual electric resistance at 4.2 K. Rectification alone lowered the total content of Al, Ni, Sn, Sb, Pb, Bi, Co, Mn, Ca, Ga and other impurities in cadmium to less than $1 \cdot 10^{-5}$ wt %. The yield was 60% of the charge. The lowest values of the residual electric resistance obtained with rectification was $0.9 \cdot 10^{-10}$ ohm·cm for zinc and $0.6 \cdot 10^{-10}$ ohm·cm for cadmium. Additional purification was done by 20-pass zone refining with a molten metal zone 4.5 cm wide

Card 1/2

UDC: 621.915.592:546.47'48

L 31993-66

ACC NR: AP6019565

and a zone speed of 4.5 mm/hr. With zone refining the residual electric resistance in zinc and cadmium decreased to $0.6 \cdot 10^{-10}$ and $0.48 \cdot 10^{-10}$ ohm·cm, respectively (the respective purity ^{to} 99.99998%). From the data on cadmium rectification the coefficient of the separation for the Cd-Zn system with a low concentration ($1 \cdot 10^{-3}$ — 10^{-4} wt%) of the second component was calculated and found to be 2.0 ± 0.3 .
Orig. art. has: 6 figures and 4 tables. [MS]

SUB CODE: 11, 13/ SUBM DATE: 06May65/ ORIG REF: 015/ ATD PRESS: 5021

2/2 LC

CHERNYAYEV, V.N.; POVEDSKAYA, L.G.; SHASHURIN, Yu.S.

Study of the purification of mercury. Zhur. prikl. khim. 37
no.12:2557-2565 D '64. (MIRA 18:3)

POVEDSKAYA, T.A.

Experience with the management of true eczemas according to
data from three Leningrad clinics. Vest.derm.i ven. 35
no.3:58-60 Mr '61. (MIRA 14:4)

1. Iz kozhnogo oteleniya (zav. T.A. Povedskaya) Leningradskogo
kozhno-venerologicheskogo dispansera No.5 (glavnyy vrach G.Ye.
Dynkevich).

(LENINGRAD—ECZEMA)

C A

7

Viscosity of tin slags. F. M. Loskutov and L. G. Povedskaya. *Tiretnye Metal.* 10, No. 5, 48-55 (1966). The viscosity of Sn slags at the time of tapping is 15-15 poises. The viscosity increases with acidity. FeO lowers the viscosity (slags contg. 38-40% of FeO are fairly fluid at 1200-1400°C). Al₂O₃ increases the viscosity; its content should not exceed 10-13%. Low-lime slags are more viscous, but CaO above 10% also increases the viscosity. The CaO content is best kept at 9-10%. Three per cent of CaF₂ lowers the viscosity considerably; the use of greater quantities of CaF₂ is not advisable. Addition of P₂O₅ of MnO lowers the viscosity by half. M. Hosh

KESSENIKH, R.M.; SOTNIKOV, V.G.; TRIPPEL', V.G.; SHUMILOV, Yu.N.; POVELICHENKO,
A.P.; OPREZHEVA, Yu.G.

Effect of plasticization on the physical properties of polyvinyl
chloride resin. Izv. TPI 126:36-45 '64. (MIRA 18:7)

L 17783-66 EWT(m)/EWF(j) RM

ACC NR: AR5020054

SOURCE CODE: UR/0081/65/000/012/S058/S058

AUTHOR: Kessenikh, R.M.; Sotnikov, V.G.; Trippel', V.G.; Shumikov, Yu.M.;
Gruzdeva, Yu.G.; Povelichenko, A.P.

ORG: none

TITLE: Effect of plasticization on the physical properties of polyvinylchloride tar

SOURCE: Ref. zh. Khimiya, Abs. 128344

REF SOURCE: Izv. Tomskogo politekhn. in-ta, v. 126, 196 , 36-...

TOPIC TAGS: polyvinyl chloride, plasticizer, electric properties, vinyl plastic, brittleness, thermal stress

TRANSLATION: A study was made of the effect of low-molecular weight plasticizers (PL) from dioctylphthalate (DOP) and dibutylsebacinate (DBS) on the thermophysical and electric properties of polyvinylchloride (PVC). It was established that PL affects the maximum of dipole elasticity losses and when the content of PL is considerable it displaces the maximum to lower temperature areas and decreases its value; the effect on PVC produced by DBS is stronger than that of DOP. There is a considerable PL effect at 20° on the resistance of specific volume in plasticized PVC when the compound contains >20% of PL. The greatest effect is achieved by DBS, lowering the specific volume resistance by 3 points, as compared to pure PVC. If the compound contains 50% of DBS, the specific volume resistance goes down by 5 points and is further lowered at higher

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ACC NR: AR5020054

temperatures. The introduction of PL lowers the embrittlement temperature (ET): with a content of 5% of PL in the compound, as referred to the ET of PVC, the ET equals 20°; with a 50% content of PL in the compound, the ET equals 1°. DOP and DBS have an almost identical effect on the thermal expansion and the ET in PVC plastics. By means of a roentgenographic analysis it was established that the introduction of PL into PVC ($\leq 20\%$) stimulates a better ordered structure of the material; however, a further increase of PL (50%) will disturb the order of the compound structure.

SUB CODE: 07

Card 2/2 vmb

POVELITSKY, F.D.

USSR / Microbiology. Medical and Veterinary Microbiology. F-5

Abs Jour: Referat Zh.-Biol., No 6, 25 March, 1957, 22027

Author : Povelitsa, F.D.

Inst : _____

Title : The Problem of Brucella Resistance in Relation to Sanazin.

Orig Pub: Tr. Kharkovsk. med. in-ta, 1955, No 34, 158-164.

Abstract: Among the 25 tested laboratory and freshly isolated strains of brucella no cultures were found to be naturally resistant to sanazin (I). In cultivating brucella on a medium containing subbacteriostatic concentrations of I, forms are produced which possess a higher resistance to this preparation. This circumstance indicates adaptability of brucella to I. It may be surmised that in treating brucellosis by I, medically resistant forms of brucella are produced.

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Overheating of the body and the content of ascorbic acid in the tissues of guinea pigs. F. D. Povallin and R. G. Idlina. *Izld. espil. (Ukraine)* 1940, No. 4, 44-6 (in Russian, 47; in French, 47).—The purpose of these experiments was to study overheating as a possible factor influencing the metabolism of ascorbic acid in tissues. The animals were fed a scorbutogenic ration with addition of 2-4 mg. of vitamin C, for 5-6 days. Then they were placed in a thermostat at 45°, one hr. daily for 2 days, and for two hrs. on the third day. The ascorbic acid content of the urine was detd. in 24-hr. specimens daily during these expts. The animals were killed and the ascorbic acid contents detd. in the livers, kidneys and suprarenals. Control animals were subjected to the same procedure, without overheating. The vitamin C content of the liver and kidneys was only slightly lowered, but in the suprarenals it dropped 40%, as result of overheating. The urinary excretion of ascorbic acid fluctuated from day to day in both the overheated and the control animals, but there was no appreciable change during the time of overheating. It is concluded that under conditions of experiment the decrease of vitamin C in the tissues may be due to its rapid decompn. during overheating. C. S. S.

POVELKINA, V.P.

Systematic polarographic analysis of cations. I. Conditions for determination of the copper and iron subgroups. M. A. Portinov and A. A. Kozlova. Zhur. Anal. Khim. 2, 345-52 (1947). Cu^{++} and Cu^+ were detd. $E_{1/2}$, $E_{1/4}$, and h (height of wave). $E_{1/2}$ for Cu concns. of 0.00003-0.00715 N was -0.40 to -0.43 v.; $E_{1/4}$ for the same concns. was -0.46 to -0.51 v. The supporting electrolytes, NaCl, KCl, BaCl_2 , CaCl_2 , $(\text{NH}_4)_2\text{SO}_4$, and NH_4NO_3 had practically no effect on $E_{1/2}$ nor on h (22.5-25.0 mm.). Only NaCl lowered $E_{1/2}$ to 0.38 v. This phenomenon will be investigated further. In ammoniacal tartrate soln., the $E_{1/2}$ and h of Bi remained practically const. in the presence of 0.1 N solns. of inert salts, $E_{1/2} = -0.50$ to -0.70 v., $h = 37.5-41.0$ mm. The effect of concn. of a neutral salt on the $E_{1/2}$, $E_{1/4}$, and h of Bi was studied with NH_4NO_3 . As the concn. of the salt increased $E_{1/2}$ became more pos. and h decreased. $E_{1/4}$ detd. in HCl soln. changed with the concn. of HCl. For Pb, the relation between h and concn. was directly proportional in an acid, alk., and ammoniacal tartrate media. In alk. solns. Sn, Sb, and As did not affect the h -concn. relationship of Pb, Sn greatly affected the reduction potential ($E_{1/2}$ changed from approx. -0.72 to -0.94 v.), Cr and Al had no effect. In acid solns. CaCl_2 affected

$E_{1/2}$ and h of Pb. In detg. Cd in an ammoniacal soln., a change in the concn. of Cd did not affect the reduction potential; an increase in the concn. of NH_4OH shifted the $E_{1/2}$ and $E_{1/4}$ toward more neg. values, while h decreased somewhat; the nature of the supporting electrolyte had no effect on the reduction potential but h decreased somewhat with an increase in the concn. In acid soln. an increase in the concn. of Cd above 0.02 N shifted $E_{1/2}$ considerably toward pos. values. In detg. trivalent Fe, the concn. of the supporting electrolyte $(\text{NH}_4)_2\text{SO}_4$ had practically no effect on $E_{1/2}$ and h . The concn. of KNa tartrate strongly affected $E_{1/2}$ and h . In detg. Al with CaCl_2 as supporting electrolyte, h decreased as CaCl_2 increased. Up to a CaCl_2 concn. of 2.7 N, $E_{1/2}$ remained const., above this concn. $E_{1/2}$ became more neg. Cr gave 2 waves both unaffected by concn. $\text{Cr}^{+++} \rightarrow \text{Cr}^{++}$, $E_{1/2}$ approx. -0.95 v. and $\text{Cr}^{++} \rightarrow \text{Cr}$, $E_{1/2}$ -1.50 v. The

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

F. GROUPS										SUBGROUPS										MATERIALS									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

(over) →

first $E_{1/2}$ remained unaffected by the concn. of the supporting electrolyte, $E_{1/2}$ of the second wave shifted with the concn. of the supporting electrolyte. It is recommended to det. Cr in the presence of 0.1-0.2 N CaCl_2 in a stream of H_2 at a pH 3.0-5. II. Conditions for the analysis of the arsenic subgroup. M. A. Portnov and V. E. Foyelkina. *Ibid.* 3, 85-91 (1948).—Detn. of Sn was attempted in HCl , H_2SO_4 , alk. KNa tartrate, and $\text{H}_2\text{SO}_4 + \text{EtOH}$ solns. The best results were in HCl solns. A sample of Sn was dissolved in 6-8 N HCl and the soln. was dild. to 1 N HCl . As supporting electrolyte BaCl_2 or NaCl was used. Prior to taking of polarograms H_2 was passed through the soln. for 1 hr. Under these conditions the height of the Sn^{++} wave is proportional to its concn. in soln. Equally good results were obtained in a soln. of 1 part 5 N H_2SO_4 and 1 part of EtOH using Na_2SO_4 or K_2SO_4 as supporting electrolyte and carrying out the analysis under H_2 . EtOH reduced the height of wave. In the absence of H_2 , the height of the Sn^{++} wave was reduced to zero after 3 hrs. Trivalent Sb was detd. in 10 N H_2SO_4 , $E_{1/2}$ -0.2 v., in an oxalate soln., $E_{1/2}$ 0.4 v., in a 10-20% alk. soln., $E_{1/2}$ -0.2 v., in a neutral soln., $E_{1/2}$ -0.6 v., and in a soln. consisting of 1 part of H_2SO_4 and 1 part of EtOH , $E_{1/2}$ -0.27 v. The supporting electrolyte should be Na_2SO_4 or K_2SO_4 , the soln. should contain 2-3 drops of gelatin, and the detn. should be carried out under H_2 . Trivalent As in H_2SO_4 soln. gave 3 waves. The 3rd is unstable. In an alk. soln. As could not be detd. In a $\text{H}_2\text{SO}_4 + \text{EtOH}$ soln. As gave 3 waves of which only the 1st, $E_{1/2}$ -0.64 v., is reliable. When Sn, Sb, and As are present together, they are readily detd. In a soln. of 1 part 5 N H_2SO_4 and 1 part EtOH and contg. 3-4 drops of 1% gelatin soln.

M. Hosh

2/2 M.A. PORTNOV
A.A. KOZLOVA

POVEL'NENKO, A. P., Doc of Med Sci -- (doc) "Injuries to the articular Tibiotar-
salis," Sinfersol'. 1959, 36 pp (Kazan State Medical Institute) (KL, 4- 1, 112)

POVEL'NENKO, A.P., dotsent

Subtalar dislocation of the foot. Ortop., travn. i protez.
18 no.5:86 S-O '57. (MIRA 12:9)

1. Iz kafedry gosspital'noy khirurgii (zav. - prof.Ye.I.Zakharov)
Krymskogo meditsinskogo instituta (dir. - dotsent S.I.Georgiyev-
skiy).

(FOOT--DISLOCATIONS)

POVEL'NENKO, A.P., dots.

Brief report on the activities of the Crimean Surgical Society in
1956. Nov.khir.arkh. no.6:84-85 N-D '57. (MIRA 11:3)
(SURGERY--SOCIETIES)

POVOLOTSKIY, P. Ya.

6
45-2
45-7
Taking Samples for Determining the Hydrogen Content
of Steel. A. N. Molotov, P. Ya. Povolotki and V. P.
Isayev. (Zavodskaya Laboratoriya, 1956, 22, (1), 867-869).
[in Russian]. A sampling method is described which is
used to enable the true hydrogen content of rolled products
to be determined. A special hollow drill is used to obtain
a sample along the centre of the side face of the material.
The tool rotation rate is restricted to 35 r.p.m. to avoid heat-
ing the sample, the drilling of blooms 250 mm in section
taking about three hours. Samples were stored in solid
carbon dioxide till analysed. Results obtained for two steels
are tabulated. --s. k.

PM 125 ha
MT

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Systematic Analysis of Cations by the Polarographic Method. II. Conditions for Determination of the Elements of the Arsenic Subgroup. (In Russian.) M. A. Portnov and V. P. Povelkina. *Zhurnal Analiticheskoi Khimii* (Journal of Analytical Chemistry). v. 3. Mar.-Apr. 1948, p. 85-91.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

POVELYAGINA, Z.S.; TELITCHENKO, M.M.

Concentration of radioactive phosphorus and strontium by various
fresh-water mollusks. Biul. MOIP. Otd. biol. 64 no.2:79-83 Mr-Apr
'59. (MIRA 12:10)
(Mollusks) (Water--Purification) (Radioisotopes)

CIA-RDP86-00513R0013427